

Bellwork: 2/6/13

Put the following functions in standard form, then determine the degree and number of terms.

1)  $4x^5 - 8x^2 + 6x^5 - 9x + 17$   
 $10x^5 - 8x^2 - 9x + 17$

SF:  $10x^5 - 8x^2 - 9x + 17$

Degree: 5

Terms: 4

2)  $3x^2(2x^2 - 9x^3 + 4x - 1)$   
 $6x^4 - 27x^5 + 12x^3 - 3x^2$   
 $-27x^5 + 6x^4 + 12x^3 - 3x^2$

SF:  $-27x^5 + 6x^4 + 12x^3 - 3x^2$

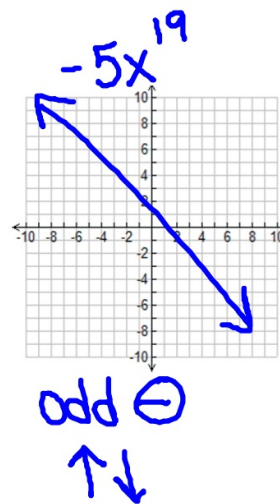
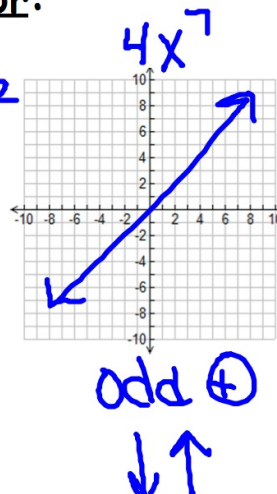
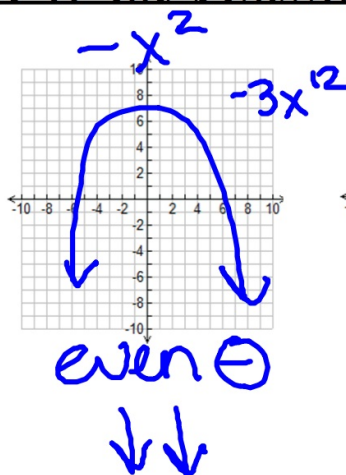
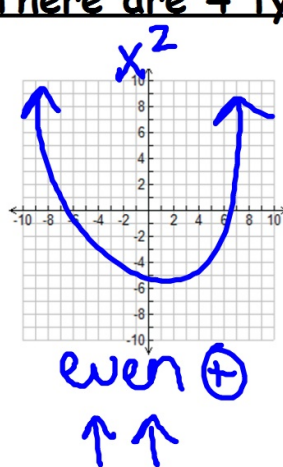
Degree: 5

Terms: 4

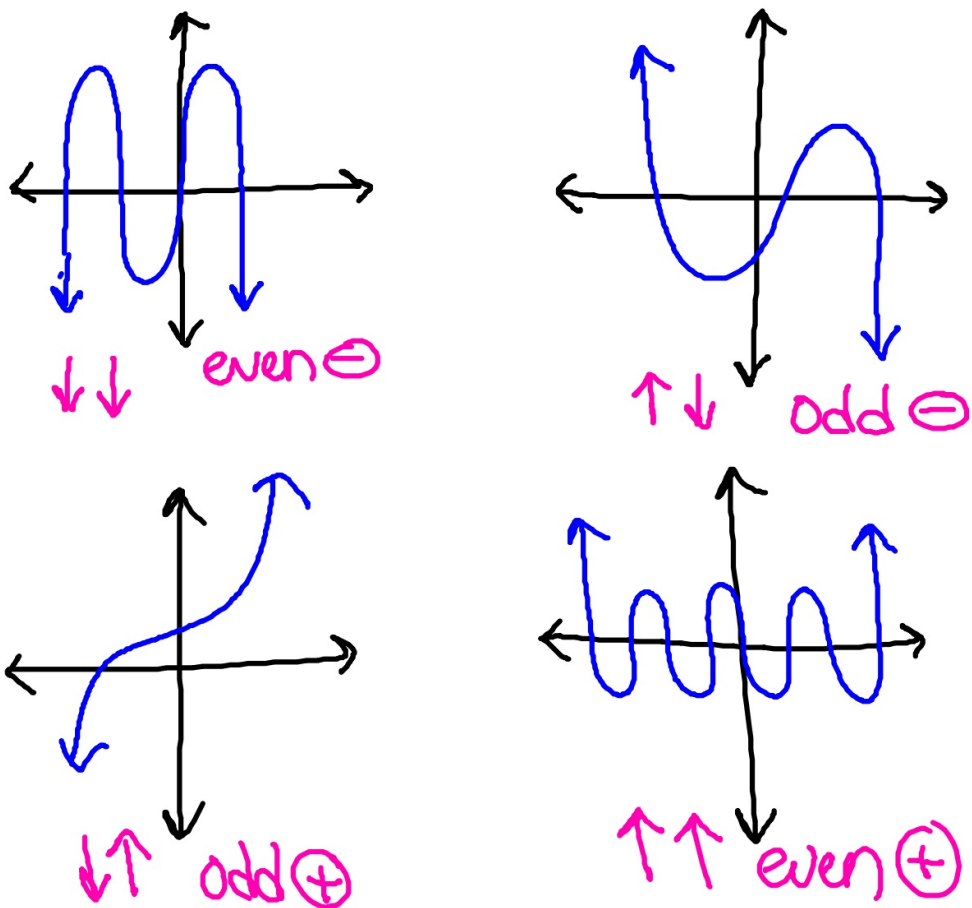
Page 1

The degree of a polynomial function affects the shape of the graph. It determines the maximum number of turning points (u-turns) and the end behavior (the direction of the graph to the left and right)

There are 4 types of end behavior:



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### End Behavior Chart:

	even degree	odd degree
# in front $\oplus$ leading coeff.	$\uparrow\uparrow$	$\downarrow\uparrow$
$\ominus$ leading coeff.	$\downarrow\downarrow$	$\uparrow\downarrow$

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Determine the end behavior of each polynomial function:

c)  $y = -7x^3 + 3x^2 - 15$

odd  $\ominus$

$\uparrow \downarrow$

left:  $\uparrow$  right:  $\downarrow$

d)  $y = 6x^4 + 5x^2 + 1$

even  $\oplus$

$\uparrow \uparrow$

left:  $\uparrow$  right:  $\uparrow$

e)  $y = -3x^3 + 7x + 4x^2 - 5$

$-3x^3 + 7x - 5$

odd  $\ominus$

left:  $\uparrow$  right:  $\uparrow$

f)  $y = -x^7 + 6x^3 + 4x^1 + 2x$

$-x^7 + 6x^3 + 2x$

odd  $\oplus$

left:  $\downarrow$  right:  $\uparrow$

Turning Points: (U-turns)

degree - 1

Determine the possible number of turning points for each graph:

g)  $x^3 + 4x^2 - x + 7$

degree: 3

$\downarrow \uparrow$

u-turns: 2

h)  $x^7 + 4x^8 - x^6 + 5x^3$

$4x^8 + x^7 - x^6 + 5x^3$

degree: 8

even  $\oplus$

$\uparrow \uparrow$  u-turns: 7

i)  $x^4 + 3x^2 + x^3 - x^4$

$x^3 + 3x^2$   
degree: 3

odd  $\oplus$   $\downarrow \uparrow$

u-turns: 2

j)  $2x^2(3x^3 + 3x - 7)$

$6x^5 + 6x^3 - 14x^2$

degree: 5

odd  $\oplus$   $\downarrow \uparrow$

u-turns: 4

Homework:

# 1-30

(Practice 5.1)

